

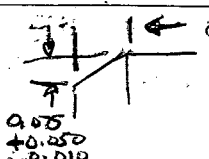
47

DART AEROSPACE LTD	Work Order:	21740
Description: Support (412 Aft)	Par. Number:	D2896-1
Dwg: D2896 Rev. A3	Qty:	8
Page 1 of 1		

Step	Location	Procedure	By	Date	Qty
1	DC	Issue Traveller <i>Blank sizes make (2) D2896-1</i> Dwg not required	HA	04.10.18	8
2	PG	Issue P/O: <i>2006482</i> Description: D6104-011 Material: 17-4 PH SS (AMS 5643 OR AISI 630) as per Dwg D6104 Material release note required.	HA	04.10.19	10
3	RG	Receive and inspect for raw material dimensions. Ensure material release note is attached.	HA	04.11.20	10
4	MS	Turn blank for Haas as per Folio FA167	HA	05.03.03	7
5	QC1	Inspect all dimensions as per Dwg D2896	HA	05.03.03	14
6	MV	Machine as per Folio FA167	HA	05.05.02	12
7	MV	Turnle & Deburr	HA	05.05.02	12
8	QC1	inspect all dimensions to inspection sheet as per Dwg D2896	HA	05.05.02	12
9	QC8	Inspect dimensions for second check	HA	05.05.02	12
10	FP	Mask Ø0.625" hole prior to paint	HA	05.05.16	12
11	FP	Powder Coat White (4.3.5.2) per QSI 005 4.3	HA	05.05.16	12
12	QC3	Inspect Powder Coat	HA	05.05.17	12
13	ST	Identify and stock	HA	05.05.17	12
14	AC	Cost / part <i>279.44</i>	HA	05.05.18	12
15	DC	Close W/O <i>279.62</i> Inspect Level 21	HA	05.05.25	12

Rev	Date	Change	Revised By	Approved
A	01.11.26	Preliminary issue	EC	
B	02.11.26	Reformat; Added P/O; Added mask hole	KJ / HA	

RELEASED
02.11.26

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Mfg / Design Mgr	Approval QC Inspector
05/05/17	13	stack 6 x Devol-04	CL	05/05/17	6	U	B 050524
05.04.25	5	 <p>0.325 +0.050 -0.010</p> <p>Allowable chamfer dimensions as shown. Ref: Dims "A-E" on INSPECTION SHEET</p>				CP 05.04.25 per Q51.042	B 050524

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
		D2896-1						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Design Mgr	Approval QC Inspector
			Initial Design Mgr	Action Description Design Mgr	Sign & Date			
05/03/03	#14	one scrap insert Brake two scrap Solvo Problems Problem Sixed	B	Des Frey Solvo changed destroy pieces	EP 5/13/08	B 05-03-05	B 05-03-05	B 05-03-05
		one piece scrap. the hole was offset of .020"	CP 05.05.04	0.020" HOLE OFFSET IS OK. CHAMFER IS 0.275" LONG ON THESE PARTS. RE-MACHINE TO 0.325+0.050 x 0.075+0.050 -0.010	CP 05.05.07	B 05-05-12	B 05-05-12	B 05-05-12
		one piece scrap the hole was offset the piece move while dry	B	Fly was Sixed piece scrap	B 05-05-12	B 05-05-12	B 05-05-12	B 05-05-12

PAR #:

Fault Category:

NCR:

Yes

No

DQA:

Date:

05/05/24

QA: N/C Closed:

Date:

all entries

DART AEROSPACE LTD	Work Order:	21740
Description: Support	Part Number:	D2896-1
Inspection Dwg: D2896 Rev. A4		Page: 1 of 1

Inspect dimensions highlighted on inspection sheet drawing D2896 Rev A4/DSK080 Rev A and record below:

				Recorded Actual Dimensions					
Dim	Min	Max	Go/No Go Gauge	1	2	3	4	By	Date
Lathe Section									
A	3.480	3.485			3.482	3.480	3.484		
B	3.990	4.010			4.001	4.000	4.003		
C	3.825	3.845			3.843	3.841	3.838		
D	0.718	0.738			0.724	0.726	0.724		
E	0.090	0.110			0.104	0.101	0.101		
F	3.705	3.725			3.720	3.720	3.715		
G	1.360	1.380			1.367	1.369	1.373		
H	1.250	1.260			1.256	1.257	1.266		
I	6.490	6.510			6.497	6.500	6.501		
J	0.022	0.042		6.40	0.032	0.032	0.032		
K	0.240	0.260			0.250	0.250	0.250		
L	0.107	0.127			0.117	0.118	0.114		
M									
HAAS Section									
AA	2.152	2.172			2.178	CANNOT MEASURE			
AB	2.340	2.360			2.345	2.355	2.354		
AC	3.550	3.560			3.547	3.560	3.560	OK	05/05/04
AD	3.770	3.790			3.774	3.778	3.777		
AE	0.065 x 0.315	0.085 x 0.335			0.070 x 0.328	0.078 x 0.332	0.080 x 0.323		
AF	1.42	1.48			1.445	1.448	1.450		
AG	0.833	0.853			0.840	0.847	0.845		
AH	0.240	0.260			0.250	0.260	0.250		
AI	0.261	0.266	DT8707		✓	✓	✓		
AJ	0.189	0.194	DT8706		✓	✓	✓		
AK	1.990	2.010			2.020	2.002	2.005	OK	05/05/04
AL	0.625	0.630	DT8709		0.632	0.625	0.625	OK	05/05/04
AM	101.75	105.75	DT8697		✓	CANNOT MEASURE			
AN	0.053	0.073			0.063	0.063	0.063		
AO	0.927	0.947				0.941	0.935		
AP									
AQ									
Accept/Reject									

Measured by:	<i>ML</i>
Date:	05/05/01

Audited by:	<i>EP</i>
Date:	05/05/02

Rev	and	Revised by	Approved
A	changed	KJ/RF	if
		KJ/RF	

RELEASED

14 04.05.27



DART AEROSPACE LTD		Work Order:	21740
Description: Support		Part Number:	D2896-1
Inspection Dwg: D2896 Rev. A4		Page 1 of 1	

Inspect dimensions highlighted on inspection sheet drawing D2896 Rev A4/DSK080 Rev A and record below:

				Recorded Actual Dimensions					
Dim	Min	Max	Go/No Go Gauge	1	2	3	4	By	Date
Lathe Section									
A	3.480	3.485		3.482	3.481	3.481	3.481		
B	3.990	4.010		3.997	4.008	4.002	4.001		
C	3.825	3.845		3.844	3.847	3.839	3.835		
D	0.718	0.738		0.726	0.726	0.724	0.725		
E	0.090	0.110		0.106	0.105	0.100	0.100		
F	3.705	3.725		3.720	3.720	3.716	3.715		
G	1.360	1.380		1.377	1.372	1.366	1.367		
H	1.250	1.260		1.250	1.260	1.259	1.260		
I	6.490	6.510		6.500	6.499	6.497	6.500		
J	0.022	0.042		0.032	0.032	0.032	0.032		
K	0.240	0.260		0.250	0.250	0.250	0.250		
L	0.107	0.127		0.118	0.118	0.118	0.118		
M									
HAAS Section									
AA	2.152	2.172		CANNOT MEASURE					
AB	2.340	2.360		2.351	2.350	2.347			
AC	3.550	3.560		3.558	3.558	3.557			
AD	3.770	3.790		3.773	3.783	3.784			
AE	0.065 x 0.315	0.085 x 0.335		0.075 x 0.321	0.079 x 0.328	0.081 x 0.335			
AF	1.42	1.48		1.446	1.443	1.441			
AG	0.833	0.853		0.842	0.842	0.846			
AH	0.240	0.260		0.250	0.250	0.250			
AI	0.261	0.266	DT8707	✓	✓	✓			
AJ	0.189	0.194	DT8706	✓	✓	✓			
AK	1.990	2.010		2.003	2.002	2.005			
AL	0.625	0.630	DT8709	✓	✓	✓			
AM	101.75	105.75	DT8697	CANNOT MEASURE					
AN	0.053	0.073		0.063	0.063	0.063			
AO	0.927	0.947		0.935	0.935	0.934			
AP									
AQ									
Accept/Reject									

Measured by:	<i>ML</i>
Date:	05/05/02

Audited by:	<i>CP</i>
Date:	05/05/02

Rev	Date	Change	Revised by	Approved
A	02.12.13	New Spec	KJ/RF	
B	04.05.27	Dimension AE changed	KJ/RF	

RELEASED

04.05.27

Job Costing Report

Dart Aerospace Ltd.
Hawkesbury

Oct 18, 2004
12:35 pm

Work Order No : 0021740
Project Name : D2896-1
Project For : WK447
Work Order Type : Main
Main WO Number :
House Part Number : D2896-1
Description : Support
Manufactured : Yes
Amount Req'd : 8
Amount Done : 0
Start Date : 10-18-04
Est Finish Date : 11-18-04
Act Finish Date :
Drawings Req'd : No
Ok for Approval :
Approval Rec'd :

Department Code:
Burden Flags : NNNNNNNN
WO Status : Open
Invoice State : Not Invoiced
Invoice Date :
Invoice Number :
Invoice Amount : 0.00
Order Entry No :
OE Value : 0.00
Est Margin : 0.000%
Actual Margin : 0.000%
\$0 Posted to Finished Goods

	Estimated	Actual	Var. %	Posted	To Post
Material Cost :	0.00	0.00	0.00	0.00	0.00
Engineering Hours :	0.00	0.00	0.00		
Engineering Cost :	0.00	0.00	0.00	0.00	0.00
Production Hours :	0.00	0.00	0.00		
Production Cost :	0.00	0.00	0.00	0.00	0.00
Packaging Hours :	0.00	0.00	0.00		
Packaging Cost :	0.00	0.00	0.00	0.00	0.00
OverHead Hours :	0.00	0.00	0.00		
OverHead Cost :	0.00	0.00	0.00	0.00	0.00
CNC Hours :	0.00	0.00	0.00		
CNC :	0.00	0.00	0.00	0.00	0.00
Misc. Hours :	0.00	0.00	0.00		
Misc. :	0.00	0.00	0.00	0.00	0.00
Burden :	0.00	0.00	0.00		
Total Cost :	0.00	0.00	0.00		
Margin :	0.000	0.000			
Selling Cost :	0.00	0.00			

	Estimated	Actual
Labour Hrs/Amount Done :	0.00	0.00
Profits/(Loss) :	0.00	0.00

**ELECTRALLOY**

175 Main Street
Oil City, PA 16301
PHONE: 814-678-4200
Fax: 814-678-4146

**MATERIAL CERTIFICATION
REPORT and CERTIFICATE
OF QUALITY CONFORMANCE**

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without the written approval of Electralloy

CUSTOMER NAME AND ADDRESS

Copper & Brass Sales
Accounts Payable
P.O. Box 5116
Southfield, MI 48086-5116

CUSTOMER ORDER NO. C89254
IDENTIFICATION Heat # 39789

PRODUCT Stainless Steel Bar, electric arc furnace melted, A.O.D. refined
DESCRIPTION forged, solution annealed and water quenched, lathe turned with
saw cut square ends.

SPECIFICATIONS

Type 17-4 (UNS S17400) - ASTM A564/A564M-04a, AMS 5643Q, ASTM A705/A705M-95,
Grade 630 ASME SA-564/SA-564M Including 1998 Winter Addenda,
ASTM A484/A 484M-03, ASME SA-705/SA-705M Including 1998 Winter Addenda
and any additional specifications which may be
listed below.

CHEMICAL ANALYSIS

Heat Number	C	MN	P	S	SI	CR	NI	MO
39789	0.039	0.47	0.020	<0.001	0.54	15.26	4.57	0.20
	CU	CB	TA	CBTA	N	CO	V	
	3.34	0.31	0.01	0.32	0.038	0.04	0.05	

ITEM DESCRIPTION

Heat Number	HWRR	Quantity & Weight	Size
39789-4C		1 Bar - 1,530 Lbs.	6.5" Rd. x 161.12" Lg.

BRINELL/ROCKWELL

Heat Number	Test	Loc	Brinell
39789-4C	TOP	*	334

PASS/FAIL TESTS

Heat Number	Macro	Etch							
39789-4C	* P								

<<<< TESTS MARKED BY (*) ARE QUALIFIED BY THE MASTER HEAT >>>>

CAPABILITIES ANALYSIS FOR CONDITION: H900

The recording of false, fictitious, or
fraudulent statements or entries on
the certificate may be punished as
a felony under federal law, Title 18,
Chapter 47.

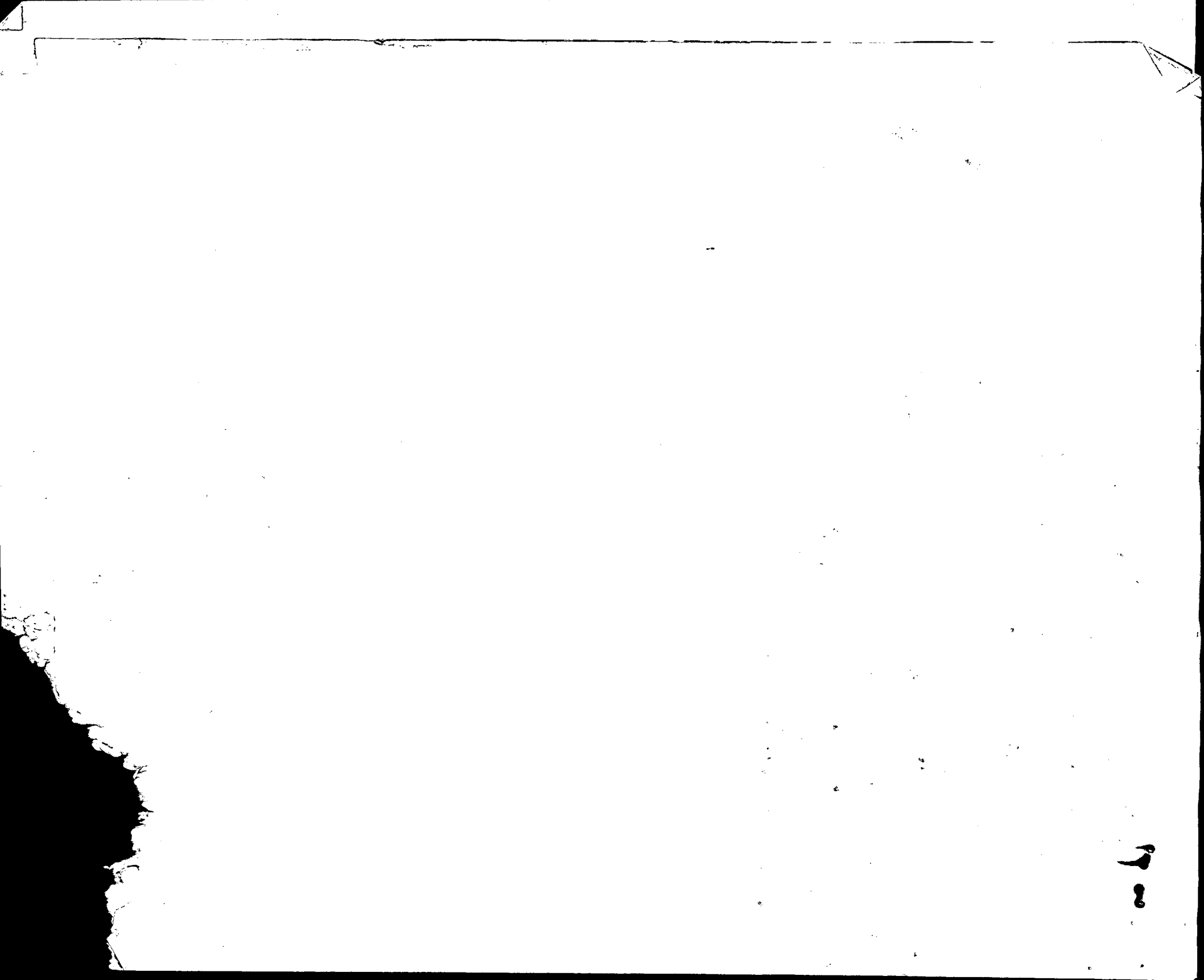
The above are true and correct results
of tests on samples of the material.
Results conform to the specification(s)
listed above and are on record.

By : William A. Deets Date: 11/18/04

HWRR = Minimum Hc

Name : William A. Deets

Title: Quality Control Technician



ELECTRALLOY

175 Main Street
Oil City, PA 16301
PHONE: 814-678-4200
Fax: 814-678-4146

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Accounts Payable
P.O. Box 5116
Southfield, MI 48086-5116

CUSTOMER ORDER NO. C89254
IDENTIFICATION Heat # 39789

PRODUCT Stainless Steel Bar, electric arc furnace melted, A.O.D. refined
DESCRIPTION forged, solution annealed and water quenched, lathe turned with
saw cut square ends.

STATEMENTS

Material Certification conforms to Certificate 3.1.B as in EN 10204.

COMMENTS

Part # 408883-7.

The recording of false, fictitious, or
fraudulent statements or entries on
the certificate may be punished as
a felony under federal law, Title 18,
Chapter 47.

The above are true and correct results
of tests on samples of the material.
Results conform to the specification(s)
listed above and are on record.

By : William A. Deets Date: 11/18/04

WRR = Minimum Hot
Working Reduction
Ratio

Name : William A. Deets

Title: Quality Control Technician



Chris Provencal

From: "David Shepherd" <davids@dartaero.com>
To: "Chris Provencal" <chrisp@dartaero.com>
Sent: May 4, 2005 2:48 PM
Subject: Re: D2896-1

The tolerance change that you have requested below is OK.

With respect to the 0.275" chamfer, it will have to be increased to at least 0.315 to be acceptable or we will run into fit problems with the rocker beam.

David

----- Original Message -----

From: Chris Provencal
To: David Shepherd
Sent: Wednesday, May 04, 2005 11:53 AM
Subject: D2896-1

There are two D2896-1 supports that they've rejected because of dimension problems:

The problem they picked up on is that the hole is 0.020" to one side (0.010" out of tolerances). It seems to me that its only out on one side of the part, so the hole may be misaligned by that much.

The bigger problem that I noticed is that the chamfer on one side is 0.275" at the top (see picture "support2.jpg", dim should be 0.325).

I will also need an email to approve the tolerance change on the chamfer to 0.325+0.050/-0.010 x 0.075+0.050/-0.010. I believe you already verbally OK'd it when you were here, but I'll need it in writing for the work order.

Sincerely,
Chris Provencal
DART Aerospace Ltd.
Email...chrisp@dartaero.com
Phone...613-632-3336
Fax.....613-632-4443